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DEVELOPMENT GUIDE FOR PHYSICALLY CHALLENGED ACCESS TO ELK CREEK FALLS

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## ABSTRACT

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A recreation site that allows use by the physically challenged does not exist on the Powers Ranger District of the Siskiyou National Forest. Several sites do hold promise for being reconstructed to a standard that would allow such use. Elk Creek Falls holds the most promise of any of the areas analyzed in this paper. The public have raised the issue of converting the Elk Creek Falls trail to a higher standard. Concern has been voiced over the safety of the trail and the discouragement of use by the physically challenged.

Several construction methods have been looked at. Building a combination of boardwalk and native surface best meets the project objectives.

## EXECUTIVE SUMMARY

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**SUMMARY:**

A recreation site that allows use by the physically challenged does not exist on the Powers Ranger District. Several sites do hold promise for being reconstructed to a standard that would allow such use. Elk Creek Falls holds the most promise of any of the areas analyzed in this paper. The public have raised the issue of converting the Elk Creek Falls trail to a higher standard. Concern has been voiced over the safety of the trail and the discouragement of use by the physically challenged.

Several construction methods have been looked at. The best method meeting the project objectives is building a combination of boardwalk and native surface. The cost is higher to build the combination trail than a native surface trail. The impacts to the site are less with the combination trail.

Compliance with the NEPA has not been done. More scoping will be needed to complete the NEPA work. Also additional analysis will be needed.

There are several alternative funding sources for the project which should be further investigated before construction commences.



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## I. INTRODUCTION:

Elk Creek Falls Trail is the first major attraction encountered after crossing the Siskiyou National Forest boundary on the Powers to Agness road. Elk Creek is a year round stream that flows from Eden Ridge into the Coquille River. Beginning at an elevation of 3,600 feet and flowing over an uplifted sandstone block to the Coquille river at 450 feet. The final 250 feet of the drop is Elk Creek Falls. The Falls is actually two falls stacked on top of each other. The first is a 50 foot drop into a punch bowl and the second a spectacular 150 foot drop onto a boulder strewn stream bed. Over the millennia, the stream has carved its way back an eighth of a mile from the Coquille River. The result is a small side canyon to the main river and the falls cannot be seen from the road.

People are impressed by the spectacular water fall and surrounding environment. Even in the heat of the Summer the small side canyon environment is cool and refreshing. During the Winter, the heavy rains cause the flow to increase tremendously. The falls expand to a raging orchestra of sound. The site can be reached year round by the public.

The only access to the falls is a trail approximately 1/8 of a mile from the Powers-Agness road to the falls vista. The trail crosses a boulder strewn slope which makes the tread surface uneven. The trail is rated as "moderate difficulty". Because of the primitive nature of the trail, many of the public are unable to view the outstanding beauty of the falls. Several individuals have expressed concern about the condition of the Elk Creek Falls Trail to the personnel on the Powers Ranger District. They are also concerned about the safety of the trail. Because of the high use of the trail, a concern has been raised over the liability of having a highly used trail that is designed to a low standard.

Approximately 10 % of the American population have some form of physical incapacity that limits normal social life in some form or another. This translates into 25 million citizens. Included in this group are millions of the elderly with arthritis, strokes, and other crippling impairments, and millions of citizens of all ages with heart conditions. The City of Powers is an old logging community with a high percentage of elderly, who are becoming less and less mobile with each passing year. Demand for a recreation site designed for the physically challenged exists and will increase in the future.

April 1988, F. Dale Robertson, Chief of the Forest Service launched the "Recreation Strategy". The strategy is a new approach to the management of recreation on the National Forests. A part of the strategy is a special program called the Scenic Byways. The program identifies forest roads that have outstanding scenery, meet the growing demand for driving for pleasure, and increase the public awareness and understanding of all National Forest activities. The Siskiyou National Forest Supervisor nominated the Powers to Agness road for this program. After some reconstruction work takes place on the road, it will receive designation. One of the key attractions on the route is Elk Creek Falls. Once designation of the byway takes place, recreation travel on the road should increase. Use of Elk Creek Falls trail will increase also.

With concern already expressed over the current condition of the trail and the increased use forecast for the future, investigation into the feasibility of upgrading the trail was needed. Contact was made with the Forest Supervisor and Forest Staff to see what they thought about the idea of upgrading an existing facility to meet physically challenged standards. Currently there is not a site on the Powers Ranger District that meets the standard. Demand for a site that can accommodate the physically challenged is present. The management of the Forest agreed with the proposal.

**Project Goal:**

Identify an opportunity to develop a recreation site on the Powers to Agness Scenic Byway that will accommodate the physically challenged user.

The purpose of this paper is to identify all potential sites along the Scenic Byway that have potential to meet the project objective. The paper will then analyze the sites and identify the best site for development. Included in the sites to be analyzed will be the Elk Creek Falls Trail.

The Forest Staff assisted in the development of the project objectives. The objectives were formulated based on the input received from the public, the field survey, the Forest Plan, and the literature review. The following are the goals for implementing the project:

Develop a recreation facility that will accommodate a wide variety of recreation users including physically challenged on the Powers Ranger District.

Concentrate development in the Coquille River Basin along the Powers Agness road to complement the Scenic Byway initiative.

Development of sites should be complementary to the natural features.

Development should be at sites which offer a natural attraction.

Development should be conducive with the Forest Land and Resource Management Plan.

The objectives should be used in the analysis and selection of the location of the development project.

**II. LITERATURE REVIEW:**

Following World War II, several laws were passed to assist returning veterans in acquiring an education and in securing employment. Many of the returning veterans had been severally wounded in the war and had permanent disabilities. To insure that they also would receive fair treatment in the workplace several laws were passed for the placement of handicapped persons in the Federal government. Public Law 617 amended the Civil Service Act of 1883 to remove discrimination with respect to the appointment of persons having physical handicaps in Federal employment was enacted in 1947. In 1955 the Civil Service



Commission issued a booklet for Federal Agencies: "Selective Placement Programs for the Handicapped", which encouraged Federal administrators to hire the physically challenged. The physically challenged began moving into the workplace in greater numbers than ever before.

Now that the physically challenged had employment and increased disposable income, they began searching for ways to spend their leisure time. With the increased income they became more mobile and were traveling beyond the previous barriers. Many of them began traveling to the National Forests to experience outdoor recreation. This created an increased demand for sites developed to accommodate use by physically challenged users.

In the early 1960's, to meet the increased demand the Forest Service began to design and construct highly specialized outdoor recreational facilities for the physically challenged. A trail for the blind was developed on the White River National Forest in Colorado. A special campground was developed at Mammoth Lakes in California. A trout pond was developed on a National Forest in Florida for the physically challenged user.

After a great deal of time and money had been invested into the construction of the specialized sites, records showed that very little use was occurring. The lack of use was not due to the physically challenged user not knowing about the facility. The sites had received wide spread publicity. The physically challenged user was in many cases specifically avoided the site.

The following story from a paper by Lou G. Powell presented at the Symposium on Research in Forest Productivity, Use and Pest Control in 1983 illustrates the views of many physically challenged users:

"I came here to get away from the pressures of my job and my handicap. Those signs are like a flashing red light. A man stopped by my campsite today and didn't realize one of my legs was missing until thirty minutes later when he asked me if I would help him put his boat in the water. I reached for the crutches under the picnic table and stood up. He gasped. I don't think he would have ever stopped by if I had camped at a site that had one of those signs. As it happened, I was able to help him relax around me and we're off on a fishing trip in the morning."

The physically challenged user wants to be accepted by other users. They do not want to be singled out and stigmatized. They want to enjoy the same outdoor recreation experiences as the other users and at the same sites as the other users. Having specialized sites developed for them only makes them feel like they are being separated from the rest of society. It makes them feel their disability is a public disgrace.

Since 1983, the Forest Service has followed a different approach for physically challenged outdoor recreation. The current philosophy within the Forest Service is to discontinue the development of segregated sites for the physically challenged and to try and integrate the physically challenged user with the mainstream user by the elimination of physical barriers to their access. The Forest Service Manual states:



2333 - SITE AND FACILITY PLANNING AND DESIGN. The guidelines in this section apply to all recreation sites on National Forest System Lands.

2333.03 - Policy

4. Design and install facilities that are:

F. Devoid of barriers to the handicapped to the degree specified in "Specifications for making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped." (American National Standards Institute, Inc. ANSI-A117.1-1961. New York.)

The Forest Service has developed the Recreation Opportunity Spectrum (ROS) to assist in providing a range of recreation opportunity to the outdoor recreation user. In the development of the Forest Land and Resource Plans, a range of recreation opportunity is sought for each National Forest. At one end of the spectrum a highly developed sites such as Multnomah Falls in the Columbia River Gorge National Scenic Area. At the other end are camp sites along the Rogue River in the Wild section. The ROS was developed as a planning tool so that in providing recreation services to the public a wide range of outdoor recreation would be available. Not all forest users have the same level of desire for outdoor recreation experiences.

With that in mind, a spectrum could be developed for recreation opportunity for the physically challenged user. Not all physically challenged users have the desire to experience challenging terrain and conditions but some do. Therefore a variety of trails could be developed to suit the various users. At the highly developed end would be the paved trails and elevators found at Multnomah Falls. At the other end would be unsurfaced portions of the Pacific Crest National Scenic Trail that cross through the Wind River Nursery on the Gifford Pinchot National Forest.

A variety of guides have been published in the past two decades that discuss designing facilities for physically challenged users. Emerson D. Mills prepared a thesis in 1973 at the University of Michigan that reviewed the prevailing design standards for physically challenged access and suggested several improvements on the standards. In 1980, the Heritage Conservation and Recreation Service of the U.S. Department of Interior published a design guide for physically challenged accessible sites. The H.C. and R. publication is more comprehensive than the thesis.

Not all physically challenged users have the same level of disability nor the same access needs. Carol Ann Peterson has written some definitions in regards to disabilities in a paper titled "Characteristics of Special Populations: Implications for Recreation Participation and Planning " 1978. Some of the categories used in her paper are as follows:

Mobility Impairments:

Mild: Individuals whose physical disability because of muscular, skeletal or joint impairments has little effect on one's mobility for the ordinary functions of life.

Moderate: Individuals whose physical disability, because of muscular, skeletal or joint impairments has limited one's mobility. The individual may need the use of crutches, braces, prosthetics, or other special equipment for mobility assistance in upper and/or lower extremities.

Severe: Individuals whose physical disability, because of muscular, skeletal or joint impairments has limited one's mobility. The individual may need the use of a wheelchair and may need other specially designed equipment for mobility assistance in upper and/or lower extremities.

#### Facility Modification Standards:

None: No Facility modification required.

Minimal: Facility modification that is necessary for adequate usability, such as accessible and usable restrooms, and accessible primary entrance with wider doorways and doors that are easier to open. An example of an individual in need of minimal facility modification might be someone with a short leg brace who walks independently or with other mobility assistive apparatus.

Barrier-free: Facility modification including complete elimination of architectural barriers or the utilization of totally accessible and usable facilities, buildings and physical structures. Individuals who use wheelchairs and may need other specially designed equipment for mobility assistance in upper and/or lower extremities would require barrier-free design of facilities for ease of use.

Currently, persons who have a physical disability that limits their mobility are referred to as the physically challenged. This term will be used throughout the paper. When it is used, it will refer to all classes of mobility impairment as outlined by Peterson.

Currently no facility on the Powers Ranger District is designed for the physically challenged. All of the existing recreational facilities predate World War II. Many of them were first constructed by the Civilian Conservation Corps in the 1930's. The trails on the District were built following Native American and mining trails that predate the formation of the Siskiyou National Forest. Work that has been done on these facilities during the past two decades has been to maintain the existing design not to improve the facilities to a new standard.

The Siskiyou National Forest Land and Resource Management Plan (LMRP) states that:

The Forest Service should provide for developed recreation opportunities throughout the Forest commensurate with projected need.



The Forest Service should provide for use of the existing trail system that serves the needs of recreationists, and satisfies demand levels in a condition that protects the resource and meets minimum requirements for health and safety.

The Siskiyou LRMP allocates Elk Creek Falls to Management Area 5, Unique Interest Area. The goal of this management area is to protect significant cultural sites or outstanding geological features on the Forest. Thirty two acres have been so designated around Elk Creek Falls. The LRMP goes on to state:

Existing and potential trails should be permitted, but additional recreational developments should not be undertaken unless needed to protect cultural or geological values. Recreational use of these areas and the placement of protective improvements is consistent with the management goals. Management of recreational resources is important, but shall be secondary to cultural and geological aspects.

The Elk Creek Falls Trail is listed in the LRMP as a future trail capital investment opportunity.

A registration box was installed at the trail head in mid July 1988. The registration cards that had been completed and deposited at the trail head were collected and stored at the district office. On the back of one of the registration cards was a statement by a user expressing the desire to have the trail upgraded to allow use by physically challenged users. During the past winter a letter was written to each individual asking them for their thoughts about upgrading the standard of the trail to accommodate the physically challenged user. A letter was received from Doc Crawford of Saginaw, Oregon supporting the concept.

Another letter was sent to all institutions in the Coos County area that deal with the elderly and physically challenged asking for their input on the idea. Verbal communication with the Recreation Director of the Myrtle Point Care Center was received. The Director stated that residents of the center frequently make trips to visit the Powers Ranger District. The trips are difficult due to the age of the residents and the lack of facilities that are designed for the physically challenged. The director and the residences of the center would like a facility that was designed to allow use by the physically challenged.

### III. METHODOLOGY:

The need for an outdoor recreation facility on the Powers Ranger District has been identified. The Elk Creek Falls trail has been identified by the public as a potential site for such a facility. Before proceeding with the planning and development of the trail, other possible sites on the district need to be looked at and analyzed as to feasible alternatives for development.

On the district the following sites have been identified as alternatives for development:



Cedar Swamp Trail - Cedar Swamp is located near the crest of Eden Ridge. The water level in the swamp has been raised by a small dam to create about a four acre lake. A trail has been constructed around the lake edge. An alternative would be to upgrade the trail to a standard suitable for the physically challenged.

Daphne Grove Campground - Daphne Grove Campground is a 17 site campground on the Coquille River. Trails within the campground could be improved to provide better access to the river for the physically challenged.

Coquille Falls Trail - When the Coquille River leaves Eden Valley, it flows off of the sandstone block. This has created a spectacular series of falls. A trail has been built to the biggest of these in the Coquille Falls Research Natural Area. The trail leaves the Eden Valley road and drops into the Canyon carved by the river. The grade on the trail is generally 20% with pitches over 30%. The trail could be improved to a standard to accommodate the physically challenged.

Azalea Lake Trail - Azalea Lake is a slump area that has filled with water. The lake is approximately 8 acres. The trail leaves the experimental road where it crosses Rock Creek. It then climbs at 10% grade along a closed mining road to the lake. There are several pitches of 20% along the trail. A new trail could be planned that would be at a gentler grade and wide enough for the physically challenged user.

The decision on which site to invest in development will be based on meeting the objectives listed in the Introduction of the paper. The site that best fits the objectives should be the site receiving the investment. To assist in the decision making process the objectives have been rewritten into evaluation criteria. In the analysis section of the report the alternative sites will be compared against the evaluation criteria.

The objectives lead to the following criteria:

Objective	Criteria
Develop a recreation facility that will accommodate a wide variety of recreation users including physically challenged on the Powers Ranger District.	Can the facility be designed to accommodate a wide variety of recreation users including the physically challenged.
Concentrate development in the Coquille River Basin along the Powers Agness road to complement the Scenic Byway initiative.	Will the project compliment the Scenic Byway initiative along the Powers Agness road?
Development of sites should be complementary to the natural	Does the project complement the natural setting?

features.

Development should be at sites which offer a natural attraction.

Does the site offer a natural attraction?

Development should be conducive with the Forest Land and Resource Management Plan.

Does the proposal conform to the Siskiyou National Forest Land and Resource Management Plan?

After a decision has been made on which site is to be developed, the next decision is how to develop the site. Three alternative methods of trail construction were developed for Elk Creek Falls Trail. The following are the alternative construction methods:

Construct Native Surface Trail - The existing trail could be widened and sloped so that wheel chair access would be possible to the falls viewing area. Most of the trail would have to be blasted out of the rock material along the trail. Only in several areas does the trail pass through soil. Asphalt would be placed on the surface of the trail.

Develop Board Walk Trail - A board walk could be built along the existing alignment of the trail. The boardwalk could be constructed to meet the guidelines for physically challenged access.

Combination Boardwalk/Native Material Trail - The existing trail could be upgraded using a combination of native surface and boardwalk. The trail design would blend the construction into the environment and still accommodate the physically challenged. Blasting of rock material along the trail would not be used. Native surface trail would only be utilized where either sufficient width or absence of rocks currently exists on the trail tread to allow construction of the extra width.

The selection of the construction method to use on the trail should be based on meeting the following objectives:

- keep the cost of construction as low as possible.
- The appearance of the site should be as close to the natural setting as possible after construction is completed.
- Best meet the goals and objectives of the LRMP.

#### IV. ANALYSIS:

The Pacific Northwest Region of the Forest Service has a special program called "Travel-Way Master Performer". The program provides skilled and experienced individuals in planning, design, development, contracting, and maintenance of



recreation travel-ways. Employees are selected from within the region that possess special knowledge or skills in a particular area of recreation management. Chuck Frayer is the current Master Performer for design and construction of physically challenged trails. Chuck was contacted in November about making a trip to the Powers Ranger District to look at the potential for development of physically challenged facilities on the District. On December 19, 1988, Chuck visited the Powers District. He was shown the recreation sites mentioned above. He then assisted in the analysis of the sites in relation to the evaluation criteria.

### Cedar Swamp Trail

The Cedar Swamp Trail follows the perimeter of Cedar Swamp. The trail is less than five percent grade without any pitches. A bridge is needed at one end of the swamp to allow passage from the east side to the west side. The site can easily be adapted to physically challenged use.

Cedar Swamp is located approximately 10 miles road miles from the Powers Agness road. It is not on a paved route. To get to Cedar Swamp, one has to drive off the normal travel route. Development of the Cedar Swamp Trail would not compliment the Scenic Byway.

The trail has been located to blend into the edge of the trees along the lake. The project would compliment the natural setting.

Besides the lake, many wildlife species use the area. Beaver, elk, and deer have been seen. The site is an excellent area to watch the interaction of wildlife in a natural setting and does offer a natural attraction.

Cedar Swamp has been set aside in the LRMP as a Special Wildlife Site. Recreation development is allowed in this management area. Improvement of the trail does conform with the LRMP.

### Daphne Grove Campground

Daphne Grove Campground was built by the Civilian Conservation Corps in the 1930's. The rest rooms were reconstructed in the late 1970's. They will not allow use of wheelchair bound people. The conversion of the restrooms has been included in the upgrade of the campground in 1990. The major attraction at the campground is the Coquille River. The river has tremendous fluctuations in water level during the year. The high water mark in Winter can be 10 feet above low water in the Summer. Bed load movement during Winter high flows is high. Banks are washed away and new material is deposited annually. Any construction that would allow passage by the physically challenged would have to be fortified to withstand the Winter onslaught. Plus every summer the trail would have to be cleaned to remove the deposition of material from the winter. The site would take a substantial investment to allow physically challenged use at a specific location.

The Powers Agness road passes next to Daphne Grove Campground. Improvement of the campground would compliment the Scenic Byway.



The amount of construction necessary to withstand the river would make the structure so large and dominate that it would be an eyesore. The project would not compliment the natural setting.

Daphne Grove Campground has been set aside in the LFMP as a special developed recreation site. The proposal does conform with the LRMP.

#### Coquille Falls Trail

The trail into Coquille Falls drops 528 feet in half a mile. To build a trail the physically challenged could use, the trail would need to have a maximum of an 8 % grade. The trail would need to be a mile and a quarter long and would need to have substantial relocation to get the proper grade. Most of the drop occurs in the final eighth of a mile. Major relocation of a trail is not consistent with the LRMP direction for a Research Natural Area. Nor will the project be complementary to the natural setting. Numerous switchbacks will be required to reach the base of the falls. The final eighth of a mile will have to be carved out of the sandstone walls of the canyon. The excavation will be apparent for years to come and will detract from the natural splendor of the falls and surrounding stands of Old Growth trees.

The trail head is 2 miles off the Powers Agness road. On'y a small shoulder is available for parking. The parking area is on an 8 % grade. Egress and ingress into the vehicle will be very difficult for the physically challenged user.

Coquille Falls is a beautiful falls. It is one of the major attractions on the Powers Ranger District.

#### Azalea Lake Trail

Personnel on the Powers Ranger District have investigated alternative locations for the trail to try and get the grade less than 8 %. They have not found any location. A trail that would allow use by physically challenged users is not feasible.

#### Elk Creek Falls Trail

Three feasible alternative construction methods have been identified for Elk Creek Falls Trail. All of them will accommodate the physically handicapped user.

The trailhead to Elk Creek Falls is on the Powers Agness road. The project will compliment the Scenic Byway initiative.

The construction methods have various effects on the natural setting. Some of the methods disrupt the setting more than others. Generally the proposed project does complement the natural setting.

Elk Creek Falls is a natural attraction that draws people.

The proposal does conform to the LRMP guidelines for Elk Creek Falls.

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TABLE 1  
Summary of Analysis on Alternative Projects

Evaluation Criteria	Cedar Swamp	Daphne Grove	Coquille Falls	Azalea Lake	Elk Creek Falls
Feasibility	Yes	Yes	Maybe	No	Yes
Scenic Byway	No	Yes	No		Yes
Compliment Nature	Yes	No	No		Yes
Natural Attraction	Yes	Yes	Yes		Yes
Meets LRMP	Yes	Yes	No		Yes

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Of the alternative sites analyzed, Elk Creek Falls best meets the objectives for the project.

The next decision to be made is how the development should be done on the Elk Creek Falls Trail. The decision will be based on the criteria established earlier in the report.

#### Construct Native Surface Trail

Costs for construction of the alternative trail development methods have been developed in Appendix \_\_\_\_\_. The cost for construction of the native surface trail is \$11,040.00.

The impact of blasting a tread for the trail wide enough to allow wheel chair passage will be severe. Much of the trail is less than a foot in width. The rock along the trail will show visible signs of disturbance after the work is complete. The disturbance will not blend into the natural setting very well. It will be years before vegetation will grow again on the rocks which have been blasted.

Management of the recreation resource in Management Area 8 - Unique Interest Area is to be secondary to protection of the geological features. Although the construction will disrupt the trail side rocks, the geological features that are unique for the area will for the large part be protected.



### Develop Board Walk Trail

The cost for construction of a boardwalk trail is estimated to be \$21,808.56.

The boardwalk will blend into the natural setting. Very little of the ground and vegetation will be disturbed by the construction and the boardwalk can take advantage of some of the special features of the site. For example, the boardwalk can be built to allow trees and large rocks to be incorporated into the borders of the trail. The wood surface of the trail and the incorporation of rocks and trees into the trail will allow the user to feel like they are in the forest. The boardwalk could become as much of a draw as the falls itself.

The boardwalk will disturb the natural setting very little. The key geological features of the area will not be disturbed. The boardwalk does meet the LRMP goals and objectives.

### Combination Boardwalk/Native Material Trail

The cost of building a trail that will allow user by physically challenged users using a combination of boardwalk and native material will be approximately \$19,134.42.

The existing trail could be upgraded using a combination of native surface and boardwalk. The trail design would blend the construction into the environment. Blasting of rock material along the trail would not be used. Native surface trail would only be utilized where either sufficient width or absence of rocks exists on the trail tread to allow construction of the extra width needed for wheelchair passage. Construction along these lines would blend in even more than just the use of a boardwalk. The visitor would feel suspended over the environment, looking at it as a removed viewer. Then in a few yards, the visitor becomes a part of the environment with the moss and ferns at arms length. The mix of experiences provides a greater interaction with the site and a more memorable experience.

The combination of boardwalk and native surface accomplishes two things. It allows for a way to avoid blasting and scaring the surfaces of the attractive big rocks along the trail. The method also encourages the user to view the area from several different perspectives taking home a richer recreation experience. This method best meets the goals and objectives of the LRMP.



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TABLE 2

## Summary of Analysis on Alternative Construction Methods

Evaluation Criteria	Native Surface	Boardwalk	Combination
Cost of Construction	\$11,040.00	\$21,808.56	\$19,134.42
Complement the Natural Setting	Minimally	Does	Best
Meet the LRMP.	Minimally	Meets	Best

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The alternative construction method that uses both the boardwalk and the native surface best meets the project objectives. In fact, the method has some added features of providing a very positive recreation experience that the other two methods do not have.

#### V. IMPLEMENTATION:

Action needs to be taken in the next six months to implement this project. Within the next three months a budget proposal needs to be submitted by the Forest Staff to the Regional Office requesting funding for preparation work. Once funding is provided, work can be done on compliance with the National Environmental Policy Act (NEPA). Some scoping work has been done so far on the project, but it is not adequate for NEPA compliance. With more funding for the environmental analysis, additional scoping can take place and analysis as to whether the project will require an Environmental Impact Statement. After scoping is started, issues, concerns, and opportunities can be identified. From these the need for further analysis can be identified and a test for significant effect can be made. It does not appear at this time that the project will have a significant environmental effect, but further scoping will verify if that perception is accurate.

Once the environmental analysis and documentation have been completed, additional funds will be needed to survey and design the proposed development. The Regional Master Performer for physically challenged trails should be involved in the design process.

Also, after the NEPA compliance has been done, the District should seek funding for the construction of the project. Traditional funding source have been internal from appropriations from Congress. There are other possible sources of funding and these should be investigated besides submitting a proposal through the normal channels. The following are additional sources of funding:

L ber yards in Coos Bay area - The businesses might be interested in sponsoring a special project for the physically challenged. A way for the company to buy some good will and get some additional advertising.

**Service Clubs in Coos County** - Many service clubs look for special projects that will benefit the community. They might be willing to donate funds for lumber or more likely they might donate labor to help in construction.

**Large Timber Companies** - Like the lumber yards, the big mills might be interested in showing the communities that are altruistic. They might donate the lumber or provide some funding for the project.

**State Penitentiary** - A minimum security prison has been established in Coos County. They are looking for work for the inmates. They do not want any project that is over an hour from the facility. This project is right at the limit of travel time. The state may be interested in taking on the project if we provide the lumber and the design.

Before construction begins all of the above options should be explored to see if a partnership can be established.

#### VI. SUMMARY:

A recreation site that allows use by the physically challenged does not exist on the Powers Ranger District. Several sites do hold promise for being reconstructed to a standard that would allow such use. Elk Creek Falls holds the most promise of any of the areas analyzed in this paper. The public have raised the issue of converting the Elk Creek Falls trail to a higher standard and concern has been voiced over the safety of the trail and the discouragement of use by the physically challenged.

Several construction methods have been looked at. The one best meeting the project objectives is to build a combination of boardwalk and native surface. The cost is higher than the native surface trail, but it does not impact the site as much.

Compliance with the NEPA has not been done. More scoping will be needed to complete the NEPA work. Also additional analysis will be needed.

There are several alternative funding sources for the project which should be further investigated before construction commences.



## VII. LITERATURE CITED:

The Forest Service has a network and data base established to provide access to scientific and technical literature. This network and data base is called "FS INFO". It can be accessed by any Forest Service employee with local computer access to the Data General System. One of the features of the system is a literature search. The data base contains over 45,000 bibliographic citations. These are organized into over 400 specialized categories that can be retrieved by the user instantaneously at their home unit. Using keywords and sort functions a quick review can be made of current literature on any subject. Once a citation or several citations have been found, the user can then request copies of the material via the computer system. The requests are made to one of the eleven FS INFO Centers scattered around the country. The center will then mail copies of the requested material to the user.

For this project, a review was made of all material in the data base regarding recreation facilities for the physically challenged user. The following list was the material that was found pertaining to the subject:

## 1. Coppa &amp; Avery Consultants.

Adaptation and design of parks and recreational facilities for the handicapped. Monticello, Ill. : Vance Bibliographies, 1980. 8 p. ; 28 cm.  
Architecture series : Bibliography ; A-373

## 2. Powell, L. G.

The handicapped user in outdoor recreation resource environments : implications for resource planners / Lou G. Powell. p. 39-43 ; 28 cm.

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## VIII. APPENDIX:

## Cost Projections for Native Surface Construction

## Excavation Work:

Drill powder holes by hand:

2 people for 5 days at 10 hours per day at \$16 per hour  
Subtotal = \$1,600.00

Blast 30 holes per 100 feet of trail for 1200 feet  
Subtotal = \$ 500.00

## Preparation of Running Surface:

Gravel subsurface:

56 yards at \$15 per yard  
Subtotal = \$ 840.00

Asphalt running surface:

3 inch depth, 4 foot width, 1200 foot length  
volume = 90 tons

90 tons at \$90 per ton  
Subtotal = \$8,100.00

Total = \$11,040.00

## Cost Projections for a Boardwalk Trail

## Cost for a 12 foot section of boardwalk:

Deck 12 2x6 boards at \$3.75 per board  
Subtotal = \$ 45.00

Rails 4 2x6 boards at \$3.75 per board  
Subtotal = \$ 15.00

Posts 6 4x4 boards at \$4.95 per board  
Subtotal = \$ 29.70

Frame 8 4x6 boards at \$8.60 per board  
Subtotal = \$ 68.80

Footing 6 12x8x8 pier blocks at \$2.40 per block  
Subtotal = \$ 14.40

Hangers 20 hangers at \$1.25 per hanger  
Total = \$ 25.00

Nails 4 pounds at \$.90 per pound  
Subtotal = \$ 3.60

Total for 12 foot section = \$ 201.50

Cost of materials for 1200 feet of trail:

\$201.50 for 12 feet of trail = \$ 16.79 per foot

\$ 16.79 x 1200 feet = \$20,148.00

Cost of labor for construction:

Production will be 50 feet per day. 1200 feet / 50 feet per day equals 24 days.

2 laborers at \$17.70 per hour for 24 days  
Subtotal = \$ 825.60

1 foreman at \$34.79 per hour for 24 days  
Subtotal = \$ 834.96

Total cost of Boardwalk = \$21,808.56

#### Cost Projections for a Boardwalk/Native Material Trail

Cost of materials for 900 feet of boardwalk trail:

\$201.50 for 12 feet of trail = \$ 16.79 per foot

\$ 16.79 x 900 feet = \$15,111.00

Cost of labor for construction:

Production will be 50 feet per day. 900 feet / 50 feet per day equals 18 days.

2 laborers at \$17.70 per hour for 18 days  
Subtotal = \$ 637.20

1 foreman at \$34.79 per hour for 18 days  
Subtotal = \$ 626.22

Total cost of Boardwalk = \$16,374.42

Excavation Work:



**Drill powder holes by hand:**

2 people for 1.25 days at 10 hours per day at \$16 per hour  
Subtotal = \$ 400.00

Blast 30 holes per 100 feet of trail for 300 feet  
Subtotal = \$ 125.00

**Preparation of Running Surface:****Gravel subsurface:**

14 yards at \$15 per yard  
Subtotal = \$ 210.00

**Asphalt running surface:**

3 inch depth, 4 foot width, 300 foot length  
volume = 22.5 tons

22.5 tons at \$90 per ton  
Subtotal = \$2,025.00

Total = \$2,760.00

Grand Total for Boardwalk/Native Material = \$19,134.42